

REMARKS

The present invention is an audio apparatus and a method for transmitting an ultrasonic pressure wave into a non-linear medium for demodulation. In accordance with an embodiment of the invention, a radio telephone having an audio apparatus according to the invention is illustrated in Fig. 3. The radio telephone includes a receiver 5 which receives a broadcast signal from a base station via an antenna 6. The receiver demodulates the received digital signal and passes the demodulated signal 21 to the channel decoder 4 which corrects for bit errors that occur during transmission. The decoded digital signal is provided to a speech decoder 3 which decodes the speech and passes the digital decoded signal to an audio apparatus 2 which generates an acoustic representation of the received speech signal. See the first paragraph under the Detailed Description of the Invention.

An embodiment of the audio apparatus 2 is illustrated in Fig. 4. In accordance with the embodiment of Fig. 4, the prior art is improved upon by the utilization of modifying the audio signal to compensate for the conversion characteristics of the transducer which is provided by transducer response filter 8. See page 6, lines 24-26 of the original specification. Compensation for the effects of the demodulation process and the transducer conversion characteristics permit the size of the transducer to be reduced while retaining performance. See page 4, lines 8-11 of the original specification.

Claims 8 and 9 stand rejected as being indefinite for emitting essential elements. This rejection is traversed in that original claims 8 and 9 recite a proper combination, sub-combination relationship with the sub-combination being the body

of apparatus according to claim 1 as recited. However, claims 8 and 9 have been rewritten as claims 17 and 18 to be of the same original scope as rejected claims 8 and 9 which respectively recite an audio apparatus according to claim 10 comprising a radio telephone as recited in claim 17 and an audio apparatus according to claim 10 comprising a portable radio device as recited in claim 18. Accordingly, it is submitted that the grounds of rejection of claims 8 and 9 as being incomplete are moot.

Claims 1 and 4-6 stand rejected under 35 USC §102(b) as being anticipated by JP 60-075199 (Ricoh '199). This ground of rejection is traversed for the following reasons.

Submitted herewith for the Examiner's consideration is a machine translation of Ricoh '199. It demonstrates that the Examiner's reliance upon the device 2 of Figs. 3 and 4 as "modifying the audio signal to compensate for the conversion characteristics of the transducer (9)" is unfounded. Specifically, it should be noted that the symbol utilized for the "coefficient device" is that of a conventional amplifier and in context the meaning of a "coefficient" device is understood from the more complete machine translation provided with this Amendment. The Examiner is referred to several places within the machine translation where the element 2 is stated to be "a constant multiplier" which, of course, is nothing more than a conventional amplifier with a signal gain. Accordingly, it is submitted that the Examiner's reliance upon the "coefficient multiplier 2" of Ricoh '199 is misplaced to the extent that the Examiner is stating that it "modi[ifies] the audio signal to compensate for the conversion characteristics of the transducer (9)." The

conventional amplifier disclosed in Ricoh '199 does not have any characteristic which compensates for the conversion characteristics of the transducer and merely provides sufficient signal level in terms of amplification which is applied to the adder

4. Accordingly, it is submitted that the rejection of claims 1 and 4-6 is being anticipated by Ricoh '199 is erroneous.

Newly submitted claims 10-18 correspond to rejected claims 1-9 and therefore are patentable for the reasons set forth above. Dependent claims 13-15 correspond to rejected dependent claims 4-6.

Claim 2 stand rejected under 35 USC §103 as being unpatentable over Ricoh '199 in view of JP-58-119293 (Nipon '293). Nipon '293 has been cited as teaching an electroacoustic transducer in which an ultrasonic signal is amplitude modulated with an audio signal. However, this does not cure the deficiencies noted above with respect to original claim 1 and newly submitted claim 10. Claim 11 corresponds to rejected claim 2.

Claim 3 stands rejected under 35 USC §103 as being unpatentable over Ricoh '199 in view of U.S. Patent 6,229,899 (Norris). Norris has been cited for teaching that the frequency of the first ultrasonic signal is equal to or greater than 40kHz. However, Norris does not cure the deficiencies noted above with respect to claims 1 and 10. Claim 12 corresponds to rejected claim 3.

Claim 7 stands rejected under 35 USC §103 as being unpatentable over Ricoh '199 in view of U.S. Patent 4,823,908 (Tanaka et al.). Tanaka et al. has been cited for teaching a parametric loud speaker system wherein the characteristics are empirically derived by tone adjustment. However, this does not cure the deficiencies

noted above with respect to the rejection of claim 1 and newly submitted claim 10.

Claim 16 corresponds to rejected claim 7.

Newly submitted claim 19 recites a method for transmitting an ultrasonic pressure wave into a non-linear medium for demodulation. Claim 19 is patentable for the same reasons set forth above with respect to claims 1 and 10 in that it inter alia, recites "modifying the audio signal, before demodulating the first ultrasonic signal to compensate for the conversion characteristics of the transducer".

Newly submitted claim 20 is more limited than claim 10 in reciting in place of "means for modifying the audio signal to compensate for the conversion characteristics of the transducer" in claim 10, "a digital filter for modifying the audio signal to compensate for the conversion characteristics of the transducer". Claim 20 is patentable for the reasons set forth above regarding the deficiencies of Ricoh '199 with respect to claims 1 and 10. Dependent claims 21-23 which correspond to claims 2-4 and dependent claim 24 which corresponds to claim 7 are patentable for the reasons set forth above with respect to dependent claims 11-13 and 16.

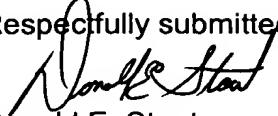
Newly submitted claims 25 and 26 correspond to claims 17 and 18 and are patentable for the reasons set forth above.

In view of the foregoing amendments and remarks, it is submitted that each of the claims in the application are in condition for allowance. Accordingly, early allowance thereof is respectfully requested.

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deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (referencing case no. 1156.38589X00)

Respectfully submitted,



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